

Appl. No 10/051,905
After Final Amendment.
Reply to Final Office Action of April 9, 2007

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A no-arbitrage-based system for valuing one or more credit instruments, said system comprising:
 - a) a database for storing credit instrument data;
 - b) a first calibration engine connected to said database, wherein said first calibration engine generates calibration parameters from said credit instrument data and current market data, said credit instrument data comprising market data;
 - c) a second pricing engine connected to said database and said first calibration engine, wherein said second pricing engine is ~~adapted~~ configured to value said one or more credit instruments according to no-arbitrage financial principles, wherein at least one of a net present value and a par-spread is calculated for each of said one or more credit instruments using current market data;
 - d) a third engine connected to said second pricing engine for performing simulation-based computations in which a plurality of scenarios are applied to market data to generate a plurality of valuation and exposure measures;
 - e) a fourth risk engine connected to said second pricing engine and said third engine for computing a plurality of risk and reward metrics from said valuation and exposure measures; and
 - f) a report generator connected to said fourth risk engine for generating reports for use in managing risk.
2. (Previously Presented) The system as claimed in claim 1, wherein at least one of said one or more credit instruments is a loan.
3. (Original) The system as claimed in claim 1, further comprising at least one input data module for storing data relating to credit instruments in said database.

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4. (Original) The system as claimed in claim 1, further comprising a portfolio hierarchy server.

5. (Currently Amended): The system as claimed in claim 1, wherein said first calibration engine comprises:

a) a first module for generating one or more basis instruments from input data relating to said one or more credit instruments, wherein said input data comprises at least one of prices, ratings, sectors, and terms and conditions;

b) a second module for generating a first term structure of risk-free zero prices and a risk-neutral process for interest rates from said one or more basis instruments;

c) a third module for generating one or more basic spread matrices from said one or more basis instruments and said first term structure of risk-free zero prices;

d) a fourth module for generating a second term structure of risk-neutral transition matrices and at least one smoothed credit spread matrix using said first term structure of risk-free zero prices, said module also adapted configured to develop generators using a transition matrix manager;

e) a fifth module for generating a third term structure of risk-neutral transition matrices for a specific named obligor from said at least one smoothed credit spread matrix, said first term structure of risk-free zero prices, and said second term structure of risk-neutral transition matrices; and

f) a sixth module for generating a plurality of spread volatility matrices.

6. (Original) The calibration engine of claim 5, wherein at least one of said modules of said calibration engine generates data subsequently stored in a Mark-to-Future cube.

7. (Previously Presented) The system of claim 1, wherein said second pricing engine comprises:

a) a first module for defining a state space;

b) a second module for generating a state space by modeling the underlying economic behavior driving the exercise of embedded options and other structural features of said plurality of credit instruments;

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e) a third cash flow generation module for generating cash flows for said plurality of credit instruments, whereby said credit instruments may be subject to different prepayment or credit state assumptions; and

d) a fourth module connected to said third cash flow generation module for generating a plurality of valuation attributes from said generated cash flows.

8. (Previously Presented) The system of claim 1, wherein the net present value of a credit instrument is calculated by performing a valuation of a plurality of cash flows for the credit instrument.

9. (Previously Presented) The system of claim 8, wherein said valuation of said plurality of cash flows is performed using a lattice valuation technique.

10. (Previously Presented) The system of claim 8, where said valuation of said plurality of cash flows is performed using a Monte Carlo simulation technique.

11. (Previously Presented) The system of claim 1, wherein the par spread of a credit instrument is calculated by determining one or more spreads such that the net present value of the credit instrument equals a specified value.

12. (New) A no-arbitrage-based system for valuing one or more credit instruments, said system comprising:

- a) a database for storing credit instrument data;
- b) a first calibration engine connected to said database, wherein said first calibration engine generates calibration parameters from said credit instrument data and current market data, said credit instrument data comprising market data;
- c) a second pricing engine connected to said database and said first calibration engine, wherein said second pricing engine is configured to value said one or more credit instruments according to no-arbitrage financial principles, wherein at least one of a net present

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value and a par-spread is calculated for each of said one or more credit instruments using current market data:

d) a third engine connected to said second pricing engine for performing simulation-based computations in which a plurality of scenarios are applied to market data to generate a plurality of valuation and exposure measures;

e) a fourth risk engine connected to said second pricing engine and said third engine for computing a plurality of risk and reward metrics from said valuation and exposure measures; and

f) a report generator connected to said fourth risk engine for generating reports for use in managing risk, wherein the second pricing engine is configured to produce at least one risk-neutral transition matrix.

13. (New) The system of claim 1, wherein the first calibration engine is further configured to classify, filter, create an interest rate model, a prior yield curve model and develop a rating based model construction process.

14. (New) The system of claim 13, wherein the rating based model construction process uses a multiple transformation function for empirical transition matrices.

15. (New) The system of claim 14, wherein the multiple transformation function is one of a Jarrow-Lando-Turnbull and a Gijima & Komoribayashi model.

16. (New) A no-arbitrage-based system for valuing one or more credit instruments, said system comprising:

a) a database for storing credit instrument data;

b) a first calibration engine connected to said database, wherein said first calibration engine generates calibration parameters from said credit instrument data and current market data.

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said credit instrument data comprising market data, the first calibration engine having a first module for generating one or more basis instruments from input data relating to said one or more credit instruments, wherein said input data comprises at least one of prices, ratings, sectors, and terms and conditions, a second module for generating a first term structure of risk-free zero prices and a risk-neutral process for interest rates from said one or more basis instruments, a third module for generating one or more basic spread matrices from said one or more basis instruments and said first term structure of risk-free zero prices, a fourth module for generating a second term structure of risk-neutral transition matrices and at least one smoothed credit spread matrix using said first term structure of risk-free zero prices, said module also configured to develop generators using a transition matrix manager, a fifth module for generating a third term structure of risk-neutral transition matrices for a specific named obligor from said at least one smoothed credit spread matrix, said first term structure of risk-free zero prices, and said second term structure of risk-neutral transition matrices, and a sixth module for generating a plurality of spread volatility matrices;

c) a second pricing engine connected to said database and said first calibration engine, wherein said second pricing engine is configured to value said one or more credit instruments according to no-arbitrage financial principles, wherein at least one of a net present value and a par-spread is calculated for each of said one or more credit instruments using current market data, having a first module for defining a state space, a second module for generating a state space by modeling the underlying economic behavior driving the exercise of embedded options and other structural features of said plurality of credit instruments, a third cash flow generation module for generating cash flows for said plurality of credit instruments, whereby said credit instruments may be subject to different prepayment or credit state assumptions, and a fourth module connected to said third cash flow generation module for generating a plurality of valuation attributes from said generated cash flows.

d) a third engine connected to said second pricing engine for performing simulation-based computations in which a plurality of scenarios are applied to market data to generate a plurality of valuation and exposure measures;

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e) a fourth risk engine connected to said second pricing engine and said third engine for computing a plurality of risk and reward metrics from said valuation and exposure measures; and

f) a report generator connected to said fourth risk engine for generating reports for use in managing risk.